A Recent Study of the Orchid Flora of Connecticut

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During eight years beginning in 1932, the undersigned, with the help of a few friends, notably Mr. Alton C. Pawsey of Glastonbury, has made an intensive study of the orchids now growing wild in Connecticut. It seems well to make a record of the results. The nomenclature with one obvious exception, the inclusive genus Habenaria, is that of Britton and Brown, Illustrated Flora, Second Edition, 1913.

There are 169 townships in the state. All have been visited and explored, some three and four times, a few more frequently. Some observations and collections have been made in the winter months.

The species most widely distributed and apparently the most abundant is *Peramium pubescens* (Willd.) McM.; this has been collected in all but two towns, which are cities, Bridgeport and New London. No record has been found of its previous detection in either of these towns.

Second in distribution and abundance is *Cypripedium acaule,* Ait. Next *Ibidium cernuum* and *Isotria verticillata* are abundant and widely distributed; the former *chiefly* in moist roadside banks, often in grassy swamps, and occasionally in open woods; the latter under various conditions of soil and association; seldom solitary and often in large colonies; one in the town of Burlington contains by actual count more than 1,000 vigorous plants.

The yellow Cypripediums are not common but are found, occasionally in large colonies, in scattered townships, in some of which they have persisted for many years. *C. hirsutum* is disappearing gradually in a large swamp in Canaan. *C. arietinum* has not been found *yet* in the state.

Hartford County, which includes much of the rich river valley and other favorable habitats, supports a much greater number of species than any other county, namely thirty-two of the forty-two recognized in the state; in an area of about one-seventh of the state, including a little more than one-sixth of the 169 towns.

Fairfield County has the smallest number, thirteen, naturally, since the shore towns are more thickly settled and include many "estates." Of the fourteen genera reported for the state all are represented in Hartford County and one, Serapias, is not found in any other.

The amphigaean genus Habenaria is well represented in the state, but in number of species, twelve, rather than in frequency or distribution. *H. bracteata, H. flava, H. hyperborea* are found occasionally; *H. clavellata,* the most widely distributed of the genus, is in thirty towns and in every county except Fairfield. It is found usually, not invariably, in small colonies in shallow, temporary pools in open woods, or on the borders of sluggish brooks.

H. orbiculata is found, sparingly except in Hartland, in nearly all the towns of the northern border. *H. Hookeriana* is frequent on one hill in Ellington and is found occasionally in four of the eight counties of the state, both northerly and southerly.

There are in the state five species of the fringed Habenarias, *H. lacera* being the most widely distributed, *H. cilaris* probably the most abundant in individuals though occurring in gradually reduced numbers in three shore towns; it has been detected also in an open field in Moodus, Middlesex County, about sixteen miles inland. *H. blephariglottis* was abundant in a thicket in South Windsor, but is disappearing rapidly. It has been reported from five other towns. *H. psycodes* occurs infrequently in all parts of the state, quite as often in open, low woods as in fields or swamps, never in large groups. *H. fimbriata* is even less frequent, is found chiefly in Hartford County. *Orchis spectabilis* is well distributed in four inland counties and abundant in one town in Litchfield County.

All three species of Peramium are found in one wood in Woodstock. *P. pubescens* is in almost every town as noted above. *P. tesselatum* is well distributed in the northerly sections and is sometimes abundant, notably in Norfolk. Its anthesis is sometimes ended as that of *P. pubescens* in the same locality is beginning.

Arethusa is vanishing; there are small groups in Glastonbury and Litchfield and, it is reported, in Pomfret. Twenty years ago it was in Thompson also. Fifty years ago it was abundant in Hamden.

Limodorum and *Pogonia ophioglossoides* are abundant in widely separated places, occasionally in damp roadsides, never, it seems, both found in large numbers in the same swamp. In one very wet bog in Marlboro, there are hundreds of *Pogonia,* very few *Limodorum;* in a grassy swamp in Simsbury near the other corner of Hartford County, the reverse is true, *Limodorum* being even more abundant.

Liparis Loeselii is infrequent, and not abundant except in one roadside bank with clayey soil, in Glastonbury. *L. liliifolia* is in forty-eight towns, in all counties; but chiefly in Hartford and New Haven Counties, infrequent in each of the others.

The three coralroots of the Eastern States are found in Connecticut; *C. trifida* is very rare, *C. maculata* is in nearly half of the towns, chiefly in Hartford and New Haven Counties, never abundant except in a bank beside an old woodroad in Woodstock, Windham County, where Mr. B. J. Pawsey found a colony of more than seventy on August 29, 1939. *C. odontorhiza* is seldom found except in Hartford and New Haven Counties. Usually there is a solitary plant or a very small group. Eight years ago there was a colony of over 100 in a low open thicket in West Hartford, but many have disappeared.

Serapias Helleborine L., the energetic species, which has spread so fast and far in New York State in the last forty years and is known also in Pennsylvania, Vermont, District of Columbia, Wisconsin and Ontario, was discovered about ten years ago in West Hartford and seems to be well established.

Aplectrum hyemale has almost disappeared; so has *Triphora trianthophora*. The two species of Malaxis are vanishing—fewer than twenty plants of *M. unifolia* have been seen by the writer in eight years and in three counties.

There are three towns, Oxford, Southington and Glastonbury, in each of which more than twenty species are well established. In some limited areas, orchids abound, in species and numbers. In one open wood, which includes some low places, in Glastonbury, fourteen species have been counted; on Soapstone Mountain in Ellington, twenty species, including *Isotria affinis, Malaxis unifolia* and the three coralroots and representing ten of the fourteen genera found in the state. Nearly all these same genera are found also in Oxford, Southington and Glastonbury, but not in such limited areas.

Of eleven species, *Orchis spectabilis, Cypripedium acaule* and *C. parviflorum, Habenaria Hookeriana, H. orbiculata, H. lacera, H. psycodes, H. fimbriata, H. clavellata, Liparis liliifolia, Isotria verticillata,* good specimens with capsules have been collected in the winter months. Of the *Isotria* it has been observed that the

leaves do not persist unless there is fruit, but with the capsule all five leaves are present occasionally.

In the City of Hartford, in Keney Park, *Cypripedium acaule* is abundant in one section, *Peramium pubescens* still persists, and until recently *Ibidium cernuum* was growing in an open tract, near the southern border, which has since been "improved."

This paper is in no sense a revision of the Orchid flora of Connecticut. It is the record of a study in distribution and abundance. Incidentally, information has been obtained in regard to periodicity and natural causes of disappearance. In any season there are many more blossoming plants than fertile capsules but some species do not depend chiefly on the seeds for propagation. Like *Malaxis paludosa* they have other methods.

To sum up, it is evident that the orchid *family* is not in danger of extermination in Connecticut. Some inconspicuous species are reduced in numbers and distribution; more showy ones are protected by public opinion or by statute; others, like *Habenaria clavellata* or either *Liparis,* are not likely to be noticed by the casual wanderer in the woods. By many the whorled pogonia would be supposed to be Medeola and *Ibidium gracile* would not even be seen.

New London County calls for fuller investigation. So do Windham and Litchfield Counties. The hopes have not died which dream of finding within our borders *Cypripedium arietinum* and *Habenaria obtusata.*

HARTFORD, CONN., May, 1940.

GREAT BRITAIN is faced with a shortage in the crude drug market of such items as deadly nightshade (*Atropa belladonna*), thorn apple (*Datura stramonium*), henbane (*Hyoscyamus niger*), foxglove) (*Digitalis purpurea*), lavender (*Lavendula vera*), and rosemary (*Rosemarinus officinalis*). Several large drug farms exist in England and production is being increased. Test plots of the drug items mentioned have been maintained in this country and if necessary suitable acreage can be developed for any demand that might be made. Economic plants that yield essential oils will be needed in this country for a shortage already exists.